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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/424,210	11/22/1999	JON TSCHUDI	2036-170	7676

6449 7590 03/21/2006

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EXAMINER	
LAROSE, COLIN M	
ART UNIT	**PAPER NUMBER**
2624	

DATE MAILED: 03/21/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/424,210	TSCHUDI, JON	
	Examiner	Art Unit	
	Colin M. LaRose	2627	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *BPAI Decision mailed 22 November 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *15-28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *15-28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *11/22/05*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

BPAI Decision

1. In the BPAI decision mailed 22 November 2005, the Examiner was reversed on all grounds of rejection in this application. Thus, all previous grounds of rejection have been withdrawn. However, new grounds of rejection appear below in view of the Tuli reference (U.S. Patent 5,942,761), which was cited by Applicant in the IDS submitted 22 November 2005.

2. Applicant is advised that, but for the reopening of prosecution for the above reason, this application would have been forwarded to the Deputy Commissioner for Patent Examination Policy to request rehearing of the Board of Patent Appeals and Interferences decision of November 22, 2005, with respect to the rejection claims 18 and 19 under 35 U.S.C. § 102(e) as being anticipated by Setlak et al. (U.S. Patent No. 5,828,773).

Prosecution is being reopened to enter a rejection of claims 18 and 19 under 35 U.S.C. § 102(e) as being anticipated by Salatino et al. (U.S. Patent No. 5,862,248), which has a common assignee with Setlak and whose disclosure is very similar to that of Setlak.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claim 15 is rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 5,942,761 by Tuli.

Regarding claim 15, Tuli discloses a method for sensing a fingerprint (see columns 5 and 6) comprising:

generating a plurality of images of different portions of a fingerprint surface by measuring structural features of the fingerprint at given intervals of time with an essentially one-dimensional sensor array as the fingerprint surface is moved relative to the sensor array in a direction that is generally perpendicular to the sensor array (see figure 1 and column 5, lines 24-56: a 1-D sensor array is used to generate many 1-line images of a finger as it slides across the array in a perpendicular direction);

determining which of the plurality of image overlap or partially overlap others of the plurality of images (see figure 4 and column 6, lines 47-67: a patterned strip 13 on the sliding platen 5 is employed to determine which of the captured 1-line images overlap; that is, each line of the fingerprint corresponds to either a black or white portion of the patterned strip; the black and white portions alternate, so when e.g. three "white" lines are captured successively, the system determines that the later two of the three captured lines are repeat measurements of (i.e. they overlap) the first captured "white" line; thus, Tuli's system can determine which of the 1-line images overlap previously captured 1-line images);

disregarding those images which overlap or partially overlap one or more other images (column 6, lines 11-21: lines already read (i.e. lines that overlap) are discarded); and

constructing a two-dimensional image of the fingerprint surface from only non-overlapping images obtained from said generating step (column 6, lines 65-67: each line of

fingerprint data is sent to the microprocessor only once, so the compiled 2-D image contains only non-overlapping 1-line images of the fingerprint).

5. Claims 18 and 19 are rejected under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 5,862,248 by Salatino et al. ("Salatino").

Regarding claim 18, Salatino discloses a method of sensing a fingerprint comprising:

applying a varying voltage (74) to a finger positioned over an electrode (54) (figures 7 – 10 show excitation drive signal 74, which is a varying (i.e. AC) voltage in the range of 1Khz to 1Mhz, is directly applied to electrode layer 71; the AC voltage flows to (and therefore is applied to) the finger through sensing electrode layer 78 – figure 9 shows a model schematic diagram of figure 8 where the finger is modeled as a variable capacitor 85 and receives the AC voltage that passes through the capacitor 83, which models the capacitive effect between the electrodes 71 and 78); and

measuring the capacitance between the electrode (54) and a capacitive sensor array (78) through a fingerprint surface positioned over both the electrode and the capacitive sensor array (as shown in figures 8 and 9, the finger is positioned over both the electrode 54 and the capacitive sensor array 78, and the capacitance between the electrode 54 (i.e. ground) and the capacitive sensor array 78 is measured through the fingerprint surface by the voltage follower 73),

wherein the capacitive sensor array (78) is separately disposed from the electrode (54) and the capacitive sensor array (78) is adapted to detect variations in capacitance across the array caused by structural features of a portion of the fingerprint surface positioned over the array (as

shown in figure 8, the electrode 54 and the sensor array 78 are separately disposed; and figures 9 and 10 show that variations in capacitance caused by the fingerprint surface are detected by the sensor array and measured by the voltage follower 73).

The "excitation drive signal" produced by the "excitation drive amplifier 74" in figs. 7 and 9 of Salatino corresponds to the claimed "varying voltage." Salatino discloses that '[t]he excitation drive signal ... is **coherently** delivered across all of the array.'" (column 7, lines 25-27).

As best understood by the examiner, Salatino's signal being "coherently" delivered across the array means that every area of the array receives substantially an equal amount of voltage applied thereto. However, Salatino teaches that a time-varying voltage, rather than a constant direct-current voltage, is what is coherently delivered to the array.

The entire quote from Salatino at column 7, lines 25-27 reads:

> The excitation drive signal may be typically in the range of about 1 Khz to 1 Mhz and is coherently delivered across all of the array.

That is, the excitation drive amplifier 74 (which is represented by the universal AC voltage symbol "~" in figs. 7 and 9) emits an electrical, or voltage, signal that varies with time and is within a range of 1 Khz to 1 Mhz. This suggests that a time-varying voltage is what is "coherently" delivered across all of the array. In other words, the array receives an equal distribution of a time-varying voltage.

This is in accordance with the Specification, which expressly states that, "an external time varying, e.g. oscillating or pulsating, voltage 12 is applied to the finger... The oscillating

voltage may, as mentioned above, be a pulse train, or a sinus" (see p. 6 of the Specification). In addition, the Specification even discloses a frequency of voltage that is within the range of frequencies disclosed by Salatino: "[i]n one embodiment, a sinus of 100kHz is applied to the conducting area" (see p. 6 of the Specification).

Since the claim merely calls for applying a "varying voltage," the issue of whether the voltage is delivered "coherently" appears to be irrelevant. "Coherently delivered" refers to how the voltage is applied rather than the type of voltage that is applied. As recited above, Salatino teaches that the voltage is time-varying within the range of 1Khz to 1Mhz. It also happens to be coherently, or evenly, delivered to the array, but this fact has no bearing on the claim.

Regarding claim 19, Salatino discloses forming a 2-D image representative of the structural features of at least a portion of the fingerprint surface using the variations in capacitance detected in said measuring step (column 3, lines 59-67: a fingerprint image signal is generated from the variations in capacitance (expressed as differences in voltage) detected from the sensing electrodes 78).

Claim Rejections - 35 USC § 103

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

7. Claim 16 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 5,942,761 by Tuli in view of U.S. Patent 6,289,114 by Mainguet.

Regarding claim 16, Tuli discloses that the measuring is performed at each of a plurality of measuring points arranged in at least one line corresponding to the essentially one-dimensional sensor array (column 5, lines 30-33: the linear sensor array comprises of many individual photo cells). Tuli's measuring point are presumably equally spaced in accordance with the conventional construction of sensor arrays. However, Tuli does not appear to expressly disclose as such.

Mainguet discloses a system for imaging a finger than is very similar to that of Tuli, wherein an image is moved across an essentially 1-D sensor array to capture a multitude of images that are compiled into an overall 2-D image of the finger. In particular, Mainguet discloses that the measuring points of the sensor are equally spaced at about 50 micrometers (column 5, lines 44-50). It would have been obvious to one of ordinary skill in the art at the time of the invention for Tuli's measuring points to be equally spaced since Mainguet shows that, for the purposes of capturing 1-D images of a finger using an essentially 1-D sensor array, it was conventional for the measuring points within the sensor array to be equally spaced and that such an arrangement was effective for achieving substantially the same results as those achieved by Tuli's 1-D sensor array.

Double Patenting

8. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection

is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

9. Claims 15 and 17 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/848,363 in view of U.S. Patent 5,942,761 by Tuli.

Claims 15 and 17 and claim 1 of the '363 application both recite the "generating" step. Claim 17 also recited the claimed arrangement of the measuring points.

Claim 1 of '363 recites constructing a 2-D image from a portion of the plurality of images, where the portion of image is defined by neglecting "selected" images and retaining the "remaining" images. However, claim 1 of '363 does not recite "determining which of the ... images overlap, ... disregarding those images which overlap, and constructing a 2-D image ... from only non-overlapping images," as claimed in claims 15 and 17.

Tuli discloses a fingerprint imaging system, as described above, where the overlapping images are determined and then discarded so that the final 2-D image is constructed from only the non-overlapping images (see the above explanation for claim 15 in paragraph 4). It would have been obvious to one of ordinary skill in the art to modify claim 1 of '363 by Tuli to achieve

the invention, as recited in claims 15 and 17, since Tuli teaches that neglecting images for the purposes of constructing a 2-D image of a fingerprint from a plurality of 1-line images is advantageously carried out by determining which images "overlap," and then disregarding the overlapping images so that any redundancy in the captured images can be removed prior to constructing the overall 2-D image of the fingerprint. As such, the "selected" images that are "neglected" would correspond to those that "overlap" other images, as required by claims 15 and 17.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

10. Claims 20-23 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 10 and 6, 8, and 9, respectively, of copending Application No. 10/848,363.

Although claim 20 and claim 10 of the '363 application are not identical, they are not patentably distinct from each other because claim 10 of the '363 application substantially recites all of the limitations of claim 20. That is, claim 10 of '363 is considered to be an obvious variant of claim 20 since it anticipates claim 20.

Both claims recite the "applying," "measuring," "generating," and "ascertaining" steps substantially verbatim.

Claim 20 calls for using the ascertained speed to determine the required relative positioning of a portion of the plurality of images to form a 2-D image of the fingerprint.

Claim 10 of the '363 application teaches such a limitation insofar as it recites using the ascertained speed to neglect certain images and constructing the 2-D from the remaining images. Therefore, the ascertained speed is used to determine the "relative positioning" of a portion of the images, where some of the images are positioned in the 2-D image based on the fact that they constitute the "remaining images" that were not "neglected."

Although claim 21 and claim 6 of the '363 application are not identical, they are not patentably distinct from each other because claim 6 of the '363 application substantially recites all of the limitations of claim 21. That is, claim 6 of '363 is considered to be an obvious variant of claim 21 since it anticipates claim 21.

Both claims recite the "generating" and "ascertaining"steps substantially verbatim.

Claim 21 calls for using the ascertained speed to determine the required relative positioning of a portion of the plurality of images to form a 2-D image of the fingerprint.

Claim 6 of the '363 application teaches such a limitation insofar as it recites using the ascertained speed to neglect certain images and constructing the 2-D from the remaining images. Therefore, the ascertained speed is used to determine the "relative positioning" of a portion of the images, where some of the images are positioned in the 2-D image based on the fact that they constitute the "remaining images" that were not "neglected."

Claim 22 and claim 8 of the '363 application are substantially identical and depend from claim 21 and claim 6 of the '363 application, respectively.

Claim 23 and claim 9 of the '363 application are identical and depend from claim 21 and claim 6 of the '363 application, respectively.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

11. Claim 24 is provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 10 of copending Application No. 10/848,363 in view of U.S. Patent 5,942,761 by Tuli.

Claim 24 and claim 10 of the '363 application both recite the "applying," "measuring," "generating," and "ascertaining" steps.

Claim 10 of '363 recites constructing a 2-D image from a portion of the plurality of images, where the portion of image is defined by neglecting "selected" images as determined by an ascertained speed and retaining the "remaining" images. However, claim 10 of '363 does not recite "using the ascertained speed to determine which of the ... images overlap, ... disregarding those images which overlap, and constructing a 2-D image ... from only non-overlapping images," as claimed in claim 24.

Tuli discloses a fingerprint imaging system, as described above, where the overlapping images are determined and then discarded so that the final 2-D image is constructed from only the non-overlapping images, as determined by the ascertained rate of movement indicated via the patterned strip (see the above explanation for claim 15 in paragraph 4). It would have been obvious to one of ordinary skill in the art to modify claim 10 of '363 by Tuli to achieve the invention, as recited in claim 24, since Tuli teaches that neglecting images for the purposes of

constructing a 2-D image of a fingerprint from a plurality of 1-line images is advantageously carried out by determining which images "overlap" using the speed of movement indicated by the patterned strip on the platen and then disregarding the overlapping images so that any redundancy in the captured images can be removed prior to constructing the overall 2-D image of the fingerprint. As such, the "selected" images that are "neglected" would correspond to those that "overlap" other images, as required by claim 24.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

12. Claims 25-28 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 14 and 17-19, respectively, of copending Application No. 10/848,363 in view of U.S. Patent 5,942,761 by Tuli.

Claim 25 and claim 14 of the '363 application both recite the "essentially one-dimensional sensor array" and "at least on pair of sensing elements."

Claim 14 of '363 recites means for constructing a 2-D image from a portion of the plurality of images, where the portion of image is defined by neglecting "selected" images as determined by an ascertained speed and retaining the "remaining" images. However, claim 14 of '363 does not recite "using the ascertained speed to determine which of the ... images overlap, ... disregarding those images which overlap, and constructing a 2-D image ... from only non-overlapping images," as claimed in claim 25.

Tuli discloses a fingerprint imaging system, as described above, where the overlapping images are determined and then discarded so that the final 2-D image is constructed from only

the non-overlapping images, as determined by the ascertained rate of movement indicated via the patterned strip (see the above explanation for claim 15 in paragraph 4). It would have been obvious to one of ordinary skill in the art to modify claim 14 of '363 by Tuli to achieve the invention, as recited in claim 25, since Tuli teaches that neglecting images for the purposes of constructing a 2-D image of a fingerprint from a plurality of 1-line images is advantageously carried out by determining which images "overlap" using the speed of movement indicated by the patterned strip on the platen and then disregarding the overlapping images so that any redundancy in the captured images can be removed prior to constructing the overall 2-D image of the fingerprint. As such, the "selected" images that are "neglected" would correspond to those that "overlap" other images, as required by claim 25.

Claims 26-28 and claims 17-19 of the '363 application are substantially identical and depend from claim 25 and claim 14 of the '363 application, respectively.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Allowable Subject Matter

13. Claims 17 and 20 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims, and subject to the filing of a Terminal Disclaimer, as required above.

Regarding claim 17, Tuli is silent to the claimed arrangement of the measuring points. Tuli discloses an embodiment that utilizes more than one line, however the measuring points in

those lines are equidistant in the horizontal direction and equidistant in the vertical direction (see e.g. figure 8).

Regarding claim 20, Salatino does not disclose moving the finger relative to the sensor array, and therefore does not disclose generating a plurality of images by moving the finger across a sensor array or determining the speed of any movement of the finger.

14. Claims 21-28 are allowed, subject to the filing of a Terminal Disclaimer, as required above.

Claim 21 is allowed for the same reasons as claim 6 of the '363 application was allowed. [Claims 22 and 23 depend from claim 21.]

Claim 24 is allowed for the same reasons as claim 10 of the '363 application was allowed.

Claim 25 is allowed for the same reasons as claim 14 of the '363 application was allowed. [Claims 26-28 depend from claim 25.]

The reasons for allowance for claims 21, 24, and 25 are as follows:

Tuli discloses neglecting selected images, as claimed (see column 6, lines 11-21). Tuli appears to also ascertain the speed of the finger and utilize the speed to determine which images to neglect. However, Tuli does not ascertain the speed by examining structural features of the fingerprint; rather, Tuli utilizes a pre-printed pattern on the glass platen, as shown in figure 4, to help ascertain the speed. Therefore, Tuli's determination of the speed of the finger does not involve the structural features of the fingerprint, as claimed.

[See also paragraphs 9-11 of Office action mailed 10/26/2005 for application serial no. 10/848,363.]

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Colin M. LaRose whose telephone number is (571) 272-7423. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jingge Wu, can be reached on (571) 272-7429. The fax phone number for the organization where this application or proceeding is assigned is (571) 273-8300. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the TC 2600 Customer Service Office whose telephone number is (571) 272-2600.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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15 March 2006

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